RESULTS REPORT

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Waste Management

Composting

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Buying Green

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Management Board Secretariat

Ontario

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Mandate

The Green Workplace Program Mandate is to hasten the greening of the Ontario Public Service through the 3Rs program and to externally showcase a green workplace in action.

The 3Rs program of *reduction*, *reuse* and *recycling* includes waste management, energy and water conservation and green procurement.

Ce document est également disponible en français.

Overview

This report focuses on fiscal year 1993/94, the third year of the Green Workplace. However, since many of the results of Green Workplace endeavours are cumulative, mention is made of earlier year projects too. In order to put into context some of the programs of year three, the plans for 1994/95 are also touched upon.

In the first year we concentrated on the basics. Recycling programs began to go into place in every Ontario Government ministry office with more than 10 people. Our partners were the ministries and the 80,000 people who were changing what they did with their "garbage" and what could be recycled or reused. Energy audits showed that government buildings could be retrofitted to significantly reduce energy consumption. The groundwork was laid for an ambitious program which relies upon private-sector funding to replace lights and electric motors with more energy-efficient models and repays this funding from the savings realized through using less energy.

Our horizons expanded in year two. The 3Rs were becoming an everyday fact of life in the OPS workplaces. Garbage had been cut in half and the "Maximum Green" pilot project showed public servants could, and would, cut that amount in half again. We were buying recycled paper and the paper we used was being recycled. The Green Workplace began helping ministries employ electronic communications to dramatically reduce the paper used in the first place. This is no quick fix but the infrastructure began to go into place with a government-wide electronic post office to make e-mail easy to use, electronic forms and other initiatives such as on-line policy manuals.

With plans underway for the new buildings to house the ministries moving to Peterborough, St. Catharines, and Niagara Falls, there was an opportunity to work with line ministries and MBS Realty staff to help make these buildings *"green"*. New partnerships were formed, this time with private-sector designers, builders and manufacturers, and with the government staff germinating a *"green industry"* program for Ontario.

The Government of Ontario was a catalyst to raise the profile of "Build Green" as it emerged in the province. Environmentally-conscious building design guidelines were developed for use in all new government building construction.

1993/94 "YEAR THREE"

In Ontario the construction sector is huge, three times as big as the automotive industry and double that of agriculture. More than half a million Ontarians are directly and indirectly employed in this $33 billion a year industry.

Since construction of the built environment is generally accepted to be one of the biggest contributors to ozone depletion, greenhouse gas emissions, acid rain and the consumption of our natural resources, the long-term health and competitiveness of the construction sector is projected to be increasingly tied to its success in becoming environmentally sustainable.

This means major changes in the way homes, offices and factories are built. Both inside and outside the government, Ontario design and building professions are taking up that challenge. The environmental symposium co-sponsored by the Green Workplace in 1993 brought together architects, interior designers, engineers and builders to work together to understand and work toward sustainability. Further symposia and workshops are taking shape for 1994.

In year three, the earlier investment in "in-vessel" composting technology paid off as we officially opened a two-tonne per day continuous flow composting machine at the Ontario Science Centre. It is a system which does not release odours and can be used in urban areas — a small one could be placed at a restaurant's back door while a small municipality could erect one large enough to compost its waste. The Science Centre composter gave an Ontario-based company the chance to show how their composting technology works. To date, their customers include the U.S. Air Force and Canada's federal government. A couple of Ontario municipalities have also expressed interest in the composters.

The first two years of water-related projects focused on conservation through the use of water conserving plumbing fixtures, xeriscape (drought-tolerant) gardens and revisions to the design standards for new government building construction. In year three, quality was the focus as plans were put into place to showcase solar aquatics, an ecological system for treating waste water that duplicates the natural purification process that takes place in fresh water wetlands. This pilot, in partnership with the private sector, will serve as a scientific test site for the technology, while its Science Centre location gives the public a window on ways of dealing with waste water.

The pilot projects, promotions to raise awareness and partnerships forged by the Green Workplace over the last three years have, in a measurable way, fundamentally changed behaviour patterns in the Ontario Public Service. A new attitude has developed. Environmental considerations are part of general business practice. The Ontario Government has shown leadership in its workplace, providing a model for other employers. This has helped put Ontario in a position to embrace the emerging "green" economy, while moving toward the overall goal of 'sustainability'.

WASTE MANAGEMENT

The Ontario Public Service met its target of 50 percent waste diversion in 1992, three years ahead of schedule.

About 80,000 government employees are practising the 3Rs in 763 workplaces across the province. Their efforts are keeping 13,000 tonnes of waste out of landfill sites annually and saving $1.3 million in landfill disposal costs*.

The diversion rate is now up to 90 percent in some locations.

Many of the buildings recording the greatest reduction in garbage are on the "Maximum Green" program.

Maximum Green

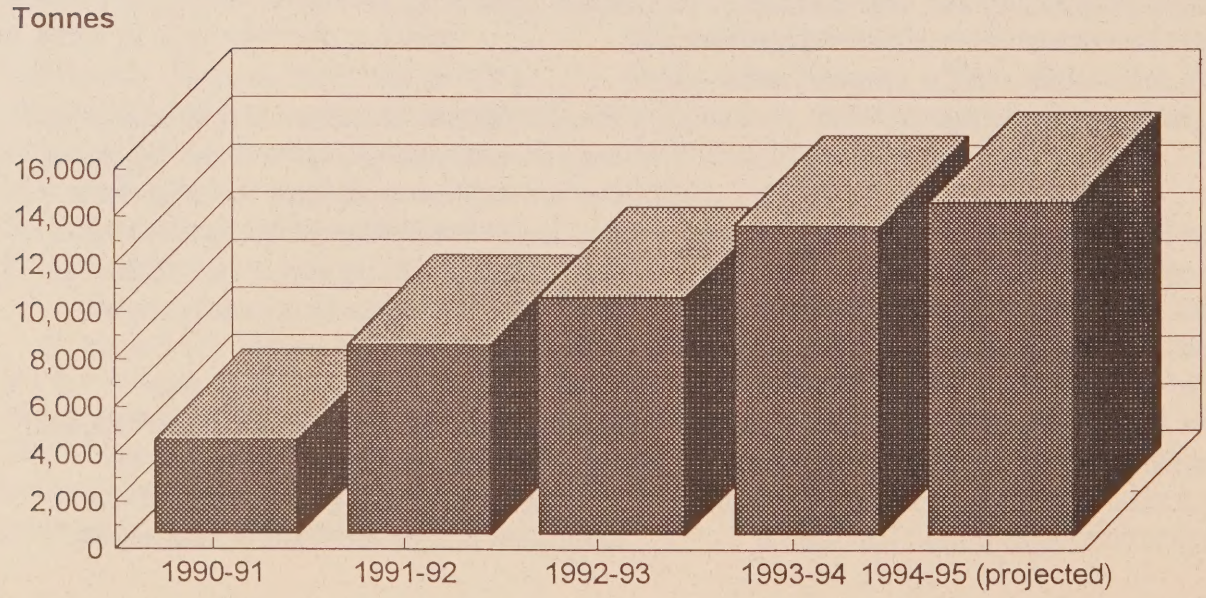
Intensified Waste Reduction

"Maximum Green" was introduced following the 1992 waste audit that showed government employees had cut their garbage output by 50 percent. The goal was to cut waste in half again in just three months.

By the end of 1993/94, Maximum Green had been introduced into 11 buildings with approximately 7,000 employees.

*Disposal cost is an estimate of the cost of disposing waste from government facilities. This includes the actual landfill cost, transportation and rental of storage containers. Since landfill costs vary significantly across the province, an average figure of $100 per tonne has been used to calculate cost savings accruing from landfill waste diversion.

Total Waste Diverted From Landfill by OPS



The basis of the program is increasing the materials that are recycled, replacing traditional individual garbage cans with small desktop mini bins and introducing the collection of food waste for composting.

Employee education about recycling and waste reduction is an important part of the program. Floor representatives, volunteers recruited to help with the program, act as on-going monitors, providing feedback on Maximum Green.

Maximum Green was started in three pilot buildings in early 1993. Each of the buildings met the target to cut waste in half in three months.

- Ministry of the Environment employees at 135 St. Clair achieved a 66 percent reduction with Maximum Green for a total diversion rate of 88 percent.
- Management Board Secretariat employees at 77 Wellesley Street West reduced their garbage by 60 percent with Maximum Green for a total diversion rate of 85 percent.
- Employees at the Attorney General at 720 Bay Street reduced their garbage by 55 percent for a total diversion rate of 75 percent.

Expansion Phase

Based on this success, a further 8 buildings with approximately 4,600 employees started Maximum Green in 1993/94. The ministries involved are: Community & Social Services; Economic Development and Trade; Health; Labour; and the Ministry of Environment and Energy. Government employees in all buildings where Maximum Green has been started have achieved an overall rate of 75 to 85 percent diversion within three months.

For example, in the ministries of Health, and Community and Social Services at Queen's Park, garbage output dropped from 44 bags per day to 12 bags per day, a 73 percent improvement. The "Maximum Green" program in the 11 buildings has diverted about 272 tonnes per year from landfill, saving about $27,200 in tipping fees alone.

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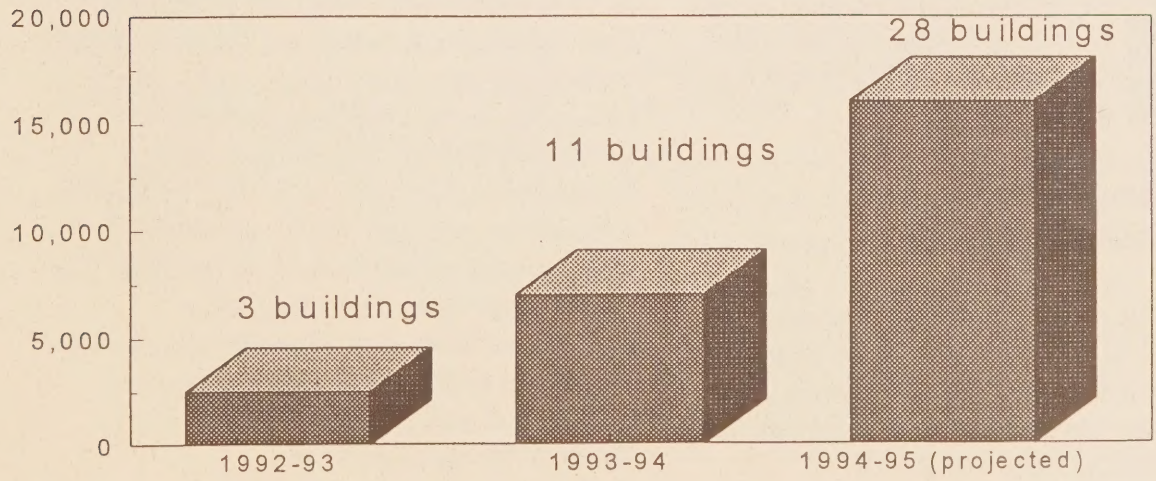
Number of Staff on Maximum Green Program

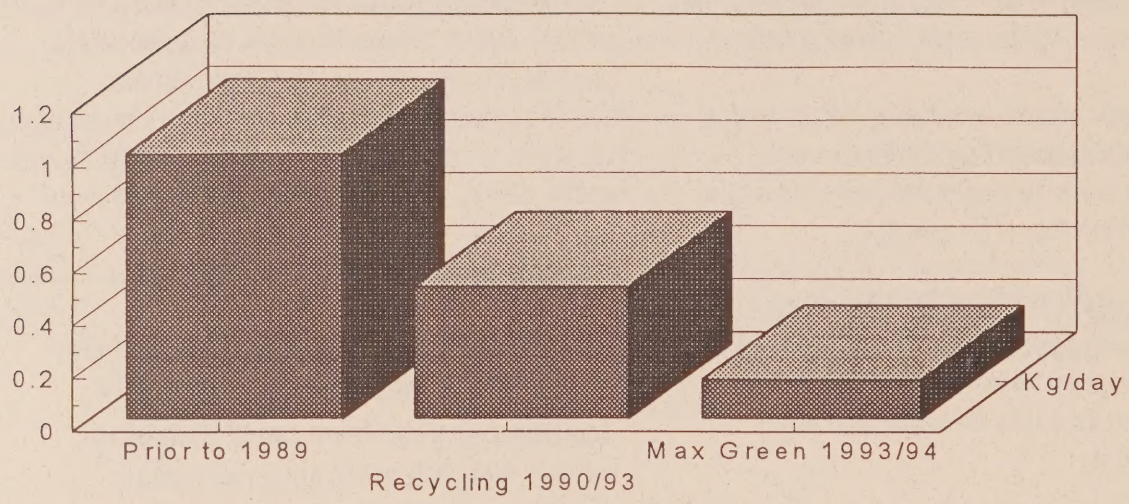


These results have sparked interest from the private sector, the federal government and environmental groups here and in the United States.

Future Plans

Seventeen buildings across the province plan to start a Maximum Green program in 1994/95, which should divert approximately 350 tonnes per year more from landfill, saving some $35,000 in tipping fees. The Green Workplace will continue monitoring established programs to determine how the program can be improved even further.

Daily Output of Garbage Per OPS Employee



COMPOSTING

Through the composting program, new Ontario-based green technologies were given the chance to demonstrate their effectiveness.

Developing Expertise: Composting Pilot Projects

Audits have shown that food and wet waste constitute up to 70 percent of the waste generated in government-run residential institutions. Composting has been identified as the best option for keeping this waste from landfill.

As there was little experience with institutional-sized composters in Ontario, the Green Workplace funded eight composting demonstration sites at OPS residential facilities during 1991/92. Composting methods or technologies tested included: small backyard composters, small office-sized vermicomposters (worm composters), windrow, windrow with manure, aerated static pile and in-vessel batch composting. All the technologies relied upon Ontario firms to develop and test the systems. All of the systems were found to work well, if managed properly and applied at the appropriate site.

The pilots were carried out in partnership with the ministries of Agriculture, Food and Rural Affairs, Community and Social Services, Health, Natural Resources, Environment and Energy, and Solicitor General and Correctional Services.

Testing of New Technologies, 1993/94

- An ***in-vessel continuous-flow composting machine***, the first of its kind in the world, was constructed at the Ontario Science Centre to demonstrate a high tech solution to composting in urban areas. The system controls odours and is therefore suitable for developed areas. The system is designed to handle approximately two tonnes of food waste a day and is handling waste from seven government facilities located in the Metropolitan Toronto area.

  The composter was designed by Wright Environmental Management Inc. The machine has attracted international attention with visitors from the United States, the Caribbean and Europe, and won the *Pollution Abatement /Clean-up Award* sponsored by the Financial Post Environment Awards for Business.

  Based on the success of this technology, a 364 kg composting unit was installed at the London Psychiatric Hospital. This was a joint project of the Green Workplace and the Ministry of Health.

  The system has since been bought by the U.S. Air Force and the Canadian government. Two units, which can process in excess of 100 tonnes a day, are planned for municipalities in the Toronto area.

- A ***large-scale vermiculture composting system***, which uses worms to process the food waste, was installed at the Brockville Psychiatric Hospital in December 1993. The worms, which consume their own weight in food waste daily, can handle 275 kg (600 lb) per day. The worms survived the coldest winter in many years proving the viability of this composting technique in our climate.

  The vermiculture system, developed by Original Vermiculture Systems, is the largest outdoor unit in North America and has attracted international attention.

A View to the Future

An organic waste study was conducted with the 62 government-owned residential/ institutional facilities not currently composting, to identify food waste volumes which could be diverted from landfill to an on-site composting operation. The study showed that 21 facilities had in excess of 45 kg of food waste per day. These facilities have the potential of diverting 1,000 tonnes of waste per year from landfill and saving $100,000 in annual tipping fees. This waste diversion would build upon existing composting operations which annually divert between 1,500 to 2,000 tonnes and save approximately $150,000 to $200,000 in disposal costs.

The Green Workplace will work with these facilities in fiscal year 1994/95 to help implement composting.

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THE GREENING FUND

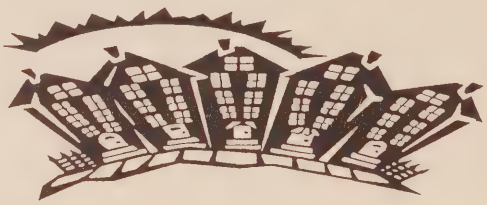
It was recognized that to start major workplace environmental projects across government, seed money would be needed to spur on change.

During the three years of the 'greening fund', new projects often built upon the successes of the previous years. The Green Workplace funding served as the catalyst and was usually matched by funds from existing ministry budgets.

During 1993/94, the Green Workplace funded 22 projects budgeted at $600,000. Key areas of concentration were: Build Green/green industries, water quality, green transportation, "paper-less" office and waste management.

In this, the third year, the program's focus turned outward, and relevant projects were undertaken with private sector partners. This sparked environmentally responsible change in important sectors of the province's economy, particularly the design and construction industry.

Greening Fund projects are discussed within their appropriate topic sections.



BUILD GREEN

Environmentally Conscious Building Design

Since its inception, the Green Workplace has been a leader in the promotion of environmentally conscious building design. Program staff worked inside government with Management Board Secretariat's Property Management and Real Estate Services Divisions, to 'green' government buildings and with the private sector to encourage broad acceptance of environmentally sustainable building methods.

Through the strategic use of funding to provide seed money for important projects and to tap contributions from a range of partners, the Green Workplace has had an influence far beyond that which its size and budget would indicate.

Green Construction Workshop, 1992/93

In 1992/93 the Green Workplace joined with the Ministries of Energy and Natural Resources to sponsor a workshop where government and private sector environmental experts were invited to discuss green office construction. The group identified cost-effective products, technologies and systems to conserve energy and water, reduce and recycle waste, and improve the indoor environment.

The workshop was based on the premise that everything in the environment is inter-related and that buildings need to be designed by interdisciplinary teams working cooperatively using a holistic model. Rather than one

environmental objective, e.g. energy, pursued at the expense of another objective, e.g. indoor air quality, an integrated approach may prove more beneficial to the building overall.

On the basis of that workshop, an expert network was established to:

- identify off-the-shelf products, technologies and systems that could be used immediately to improve the built environment;
- suggest leading edge products that could be piloted by the government; and
- list technologies that require further research prior to implementation.

A four-volume report from the workshop is available in the Build Green Resource Centre, located in the Ferguson Block, and can be obtained on diskette from the Ministry of Natural Resources Information Centre, located in the Macdonald Block.

"Greening" the Government's Design and Construction Program

Many recommendations from the workshop have been incorporated as minimum requirements in Management Board Secretariat's (MBS) Environmentally Conscious Design Guidelines .

The new government buildings under construction in Peterborough, Niagara Falls and St. Catharines will incorporate the new guidelines.

The ministry's guidelines provide generic design criteria to improve the environmental performance of government buildings. The guidelines emphasize energy efficiency, indoor environment, water conservation, avoidance of hazardous and harmful materials and overall waste reduction.

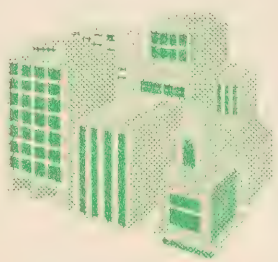
In addition, MBS master specifications for buildings are upgraded on an on-going basis to include new environmentally conscious products which have been tested to ensure they meet building standards.

Designing for the Environment Symposium, 1993 and 1994

The Green Workplace, in partnership with Management Board Secretariat and the Ministries of Environment and Energy and Natural Resources, jointly sponsored an environmental symposium with Ontario's architectural, interior design, landscaping and property management professions. The symposium focused on the need for inter-disciplinary co-operation to design buildings that have a lower impact on the environment.

The two-day symposium marked the first time that the design professions have worked together in an inter-disciplinary effort to resolve environmental problems.

Dr. Ray Cole, from the School of Architecture, University of British Columbia, spoke about the new Building Environmental Performance Assessment Criteria (BEPAC). This comprehensive assessment method was developed by the Environmental Research Group at the School of Architecture, with the support of the building construction industry in British Columbia.



BEPAC is an interdisciplinary approach to evaluating the environmental merits of a building and includes a broad range of criteria spanning global, local and indoor environments. It is structured into five major topic areas:

- ozone protection;
- environmental impacts of energy use;
- indoor environmental quality (including acoustics, lighting and indoor air);
- resource conservation (including energy, water and waste); and
- site and transportation.

BEPAC examines the environmental contributions that designers, property managers and building tenants can make to both new building construction and office retrofits.

The two-day symposium marked the first time that the design professions have worked together in an interdisciplinary effort to resolve environmental problems.

BEPAC is a voluntary, market-driven system that encourages the adoption of more environmentally responsive practices and higher performance standards.

The symposium concluded that BEPAC should be adapted to suit Ontario's unique energy profile.

Another Designing For The Environment Symposium is planned for 1994 focusing on the link between business and the environment, and the strategic role that design plays in developing a sustainable future.

Bringing BEPAC to Ontario

The Green Workplace has reached a licensing arrangement with the BEPAC Foundation to acquire the rights to apply BEPAC to Management Board Secretariat's portfolio of 800 office buildings.

Steps are being planned to adapt BEPAC to align with Ontario's unique energy profile and fuel mix. Beginning November 1994, Management Board Secretariat will assess eight office buildings using the Ontario version of BEPAC. These buildings include:

- the five building Queen's Park complex (corner of Bay and Wellesley) in Toronto;
- the headquarters of the Ministry of the Environment and Energy in Toronto;
- the headquarters of the Solicitor General and Corrections in North Bay;
- the Ministry of Natural Resources new main office in Peterborough.

In total, 5,000 staff housed in 214,000 square metres (2.3 million square feet) of office space will come under the BEPAC assessment system. Several private sector partners are working with Management Board Secretariat in adapting BEPAC to the Ontario context. Edgecombe Group Inc. and Enterprise Property Group Ltd. have committed an additional 2.4 million square feet of private sector office space for BEPAC assessments, thereby providing a broader range of information and experience for adapting the BEPAC system to Ontario's different climate and energy use profile.

Once the assessments are completed, an environmental management plan will be developed for each building. The skills and knowledge of architects, interior designers, engineers, landscape architects, property managers and researchers in new building technology will be brought together to improve the environmental performance of our buildings.

Establishing the Green Building Information Council

The Green Workplace became a founding member and financial sponsor of the Green Building Information Council (GBIC), a national network of organizations dedicated to improving the environmental performance of the built environment. The GBIC will promote the exchange of strategic information and inter-disciplinary and inter-governmental cooperation and be an information link among Canada's educational institutions, research organizations, professional associations, and government.

The GBIC will form an important link to the International Council for Building Research Studies and Documentation (CIB). The CIB is the foremost international organization for construction researchers and professionals. With almost 500 members around the world, virtually every major building research institute is part of the CIB family.

Build Green Program

The Build Green Program is a joint initiative of the Greater Toronto Home Builders' Association (GTHBA) and ORTECH Corporation. The program aims to increase consumer and builder awareness of the wide range of building materials made from recycled and renewable resources. It is a pro-active response from Ontario's builders to divert construction waste from landfill sites.

The Green Workplace teamed with the GTHBA and ORTECH to help "close the recycling loop" (i.e. purchasing products manufactured from recycled materials). By increasing public awareness, the program seeks to heighten consumer-driven demand for Build Green products, enhance existing construction waste recycling efforts, and increase market demand for products made from materials collected in the Blue Box programs.

Government Construction Using Build Green Products

Contractors for the Government buildings to be constructed in Peterborough, Niagara Falls and St. Catharines will be directed to use specific Build Green products such as fibreglass made from recycled bottles, floor and wall tile from recycled auto glass, and wall board from recycled paper and gypsum.

The Design Services Branch, MBS, continually reviews its specifications to ensure that building products made from recycled and renewable materials, which meet or exceed industry and building code standards, are included in the Master Specifications.

Public Outreach - Build Green Curriculum

To increase public awareness of the Build Green Program, particularly among young people, high school Build Green Curriculum resources were developed and tested. The Green Workplace funded this project in partnership with the ministries of Environment and Energy, and Education and Training.

The curriculum materials were distributed to 800 high schools across Ontario in the fall of 1993. In support of the curriculum, six regional teacher in-service workshops were conducted in partnership with Skills Canada.

Private sector companies sponsored the Build Green Student Challenge and awarded $50,000 in prizes to projects that promoted recycling in the construction sector. The challenge, publicized by videos produced by students, served to promote the Build Green curriculum materials within schools.

Almost 40 projects were submitted in three categories: children's storybook, promotional video and community development plan. The submissions were judged by a team of experts from the public and private sectors. The winners of the Student Challenge and the competition itself attracted substantial media coverage.

The top student projects are on permanent display at Designers Walk Resource Centre and have been showcased at special events such as: the Ontario Architects Association Envirofest, the Royal Architects Institute of Canada Round Table on the Environment Workshop, and the Skills Canada Competition in Hamilton.

Skills Canada will incorporate the challenge into their annual skills competition, and has agreed to send copies of the Build Green Newsletter to schools across Canada.

George Brown College of Applied Arts and Technology developed its own Build Green Student Challenge for first year graphic arts students. Based on the results, the college president has declared the competition an annual event.

Links to the Green Communities Initiative

The Green Workplace has worked with ORTECH and the Green Industry Office to link Build Green to the Green Communities Program.

During 1993/94, the Green Workplace provided funding toward the construction of an environmental office in Sarnia made out of Build Green materials. The facility is being built along Sarnia's waterfront by Sarnia's Centre By The Bay, in co-operation with the Ministry of Environment and Energy, local businesses and industries. This project will encourage the use of appropriate products in the community retrofit program and promote the use of Build Green products in other green communities across Ontario.

Build Green Labelling Program

To assist consumers to more easily identify and purchase Build Green products, Management Board Secretariat participated with the Greater Toronto Home Builders' Association and ORTECH Corporation, in the development of a labelling program for building products which have recycled content or demonstrate efficient use of renewable resources.

Under this program, a not-for-profit organization called *Build Green Inc.* has been created to oversee plant inspections for quality control, assist in marketing and promotion, and work to bring new products to market.

Manufacturers of recycled or renewable resource building products which meet the criteria of the Build Green Program will be eligible to carry the Build Green Label on products, literature, etc.

Industry Support

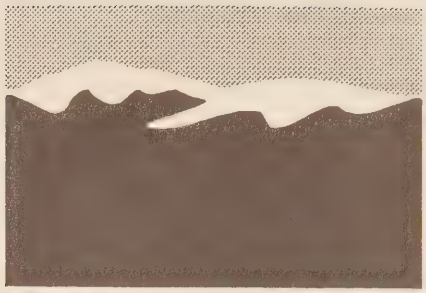
The industry has shown stronger support for the Build Green Program each year. The Ministry of Environment and Energy's Waste Reduction Strategy Team, composed of about 50 construction and environmental organizations, has strongly endorsed the Build Green Program.

The Construction Industry Advisory Council of Ontario, in their sectoral partnership strategy report, listed support for the Build Green Program as a major strategy for improving the competitiveness of Ontario's building industry.

Canadian industry is attempting to create a Buy-Recycled Alliance to develop viable long-term markets for recycled materials. The alliance would harness the purchasing power of Canada's large public and private sector organizations. A similar effort by a U.S. alliance increased the demand for products with recycled content from $2.7 billion to $10 billion from 1992 to 1993.

Towards A North American Build Green Label Program

An agreement in principle has been reached to establish a North American Build Green partnership. Organizational structure, joint promotion and marketing, database development, product quality control, revenue sharing and joint research and development initiatives are some of the areas currently under discussion.



WATER CONSERVATION & WATER QUALITY

The Ministry of Natural Resources announced the Water Efficient Ontario Strategy in September 1991 with a goal to hold water consumption to current levels through 2011. Within the strategy, the government committed itself to leadership through water efficient management practices in government buildings.

The Green Workplace launched its water efficiency drive with water audits for a range of government buildings, installation of state-of-the-art water conservation fixtures in several government buildings; and two water efficient (xeriscape) demonstration gardens.

High-water use facilities were targeted for water conservation. Twelve correctional facilities installed shower controls, self-closing faucets and water coolers. A high-efficiency laundry at Maplehurst Detention Centre has reduced water use by 65 percent; electricity, steam and gas consumption by 60 percent and chemical use by 28 percent. The laundry uses biodegradable laundry chemicals which do not release chlorine into the water.

Seven water cooled compressors for walk in freezers/coolers at the Edgar Adult Education Centre were replaced with modern, low CFC units to reduce water consumption.

Drought-Tolerant Landscaping

The drought-tolerant or "xeriscape" garden at Queen's Park was officially opened in September 1992. It has proven to be popular with the public. More than 500 people visited the Green Workplace Office requesting information and a tour of the garden within a two week period following an article published in the Toronto Star.

Water Conserving Design Guidelines

The knowledge gained from installing the low-flow water fixtures and the gardens was helpful in developing water conservation design standards for new office construction. New Ontario government buildings will employ water conserving products and technologies.

Drought-tolerant landscaping will be showcased in the new Ministry of Agriculture, Food and Rural Affairs building in Guelph, the redevelopment of the Psychiatric Hospital in Whitby and the new Ministry of Natural Resource main office in Peterborough.

Solar Aquatics

In 1993/94, work began on a project to demonstrate solar aquatics. The project is a joint venture of the Green Workplace, the Ministry of Environment and Energy, Proctor and Redfern (an engineering company), the Body Shop (a cosmetics company), the Boyne River Conservation School of the City of Toronto Board of Education and the Ontario Science Centre.

The solar aquatics system duplicates, under controlled conditions, the natural purification process of fresh water wetlands. Sewage will be circulated inside a greenhouse through a series of clear tanks containing managed aquatic ecosystems. In this treatment process, sunlight, oxygen, bacteria, algae, plants, snails and fish progressively purify the water. After treatment, the effluent quality is equal or superior to that produced by conventional wastewater treatment plants.

Solar aquatics, by treating waste water on-site, has the potential to reduce demand on both the water intake and sewage treatment infrastructure, reduce the release of chemicals such as chlorine into our waterways, and increase the capital asset value of unserviced government landholdings.

By the end of 1994, construction of the solar aquatics operation at the Ontario Science Centre (OSC) is scheduled to be completed, bringing to three the number of solar aquatics installations. A small educational system is working at the Boyne River Conservation School located near Shelburne, north of Toronto. A larger system has been established at the Body Shop's new facility in Don Mills that treats sewage and could be expanded to include the processing of industrial waste by-products. The OSC will house the largest of the three solar aquatics systems.

All three sites will be linked into a sophisticated research program to determine in detail how the solar aquatics system works.

Solar aquatics, by treating waste water on-site, has the potential to reduce demand on both the water intake and sewage treatment infrastructure, reduce the release of chemicals such as chlorine into our waterways, and increase the capital asset value of unserviced government landholdings.

The total cost of the project is about $1.0 million. The Green Workplace contributed $150,000,and the Ministry of Environment and Energy, Environmental Technologies Program awarded a $485,000 grant toward this initiative. The balance of the funding is coming from other public and private sector partners.

ENERGY CONSERVATION

FASER Measuring System

FASER (Fast Accounting System for Energy Reporting), a data management program, is being used to track, analyze and report on energy consumption in facilities. The computerized program:

- gathers data on energy consumption, costs, weather conditions and building area;
- normalizes information using an appropriate base year; and
- calculates energy consumption patterns and savings of these buildings.

Approximately 2.3 million square metres of government-owned building space is now monitored by FASER. Property managers receive detailed monthly reports.

Water consumption is now being monitored by FASER in government facilities. In the future, the system will track waste and recyclables removed from government buildings.

The information collected by FASER helps to identify and target areas requiring retrofits. When completed, the retrofits will reduce operating costs and energy use.

The following projects are examples of energy retrofits:

- Energy conserving lamps were installed in the London Court House and will save an estimated 15 per cent of total energy costs;
- Energy-efficient lamps were installed in the Whitney Block and 801 Bay Street. An automated lighting control system was also installed at 801 Bay.
- Lighting retrofits were undertaken in various areas of the Ontario Science Centre. Energy-efficient lighting is being reviewed for displays and exhibits.
- The Rain Forest Exhibit at the Ontario Science Centre uses T8 lighting and gas-fired energy efficient heating units, and earned a $15,000 rebate from Ontario Hydro.

Energy Retrofits Using ESCO Financing

More than 1,800 Power Saver energy audits have been conducted in government buildings. These walk-through audits identify areas for significant energy savings and hence, candidate buildings for energy retrofit.

MOEE and MBS, together with Ontario Hydro, have developed a joint retrofit program to make government-owned buildings much more energy efficient.

Under the program the private sector provided funding to relamp and replace mechanical equipment in government buildings. The government will recoup this expenditure over three to five years from the savings generated through improved energy efficiency.

Exceeding ASHRAE 90.1

Management Board Secretariat has agreed to achieve ASHRAE 90.1 standards in all new building construction in advance of provincial introduction in 1995. The Ontario Government Relocation Plan buildings now under construction will, in fact, exceed the ASHRAE standards. The government has also augmented the ASHRAE standards with performance criteria for

glass and window frames and other elements that might affect heat loss, minimum insulating values and insulating elements.

Several new buildings, like the new Ministry of Natural Resources main office in Peterborough, will contain an air conditioning system that supports Ontario Hydro's goal to reduce power consumption during peak times. A thermal ice storage system has been designed to reduce demand for electricity during summer's peak consumption times. The mechanical system makes ice in storage containers at night when electricity demand is low and energy rates are low and uses the ice to air condition the building during the day.

The Role of Client Ministries

Every building occupant can play a part in reducing energy. Within the building, employees are made aware that they can save energy by choosing energy efficient models of copiers, computers and printers. Individually, employees are encouraged to turn off office equipment when not in use.

In support of energy reduction initiatives, promotional material such as the *Do Your Buttons Before You Leave* posters were provided to all ministries.

INDOOR ENVIRONMENT

The indoor environment is gaining recognition as a contributing factor in people's health. Work is being done to identify and prevent pollutants from even being introduced into the environment.

In the first two years of the program, the Green Workplace provided funding for specialized air sampling equipment to accurately test air quality within buildings. It also assisted in funding the replacement of air conditioning systems and air exchangers in several correctional facilities which were experiencing air handling problems.

Pollution Prevention at Source

In 1993/94, the emphasis on indoor air quality shifted to prevention at the source. The Green Workplace, in partnership with Project Management Branch, Management Board Secretariat and the Ministry of Health, funded an indoor air quality project to conduct rigorous testing and evaluation of emissions from interior finishes proposed for use in new building construction. The project team included Ontario experts in research, toxicology and multiple chemical hypersensitivity.

The testing program identified and measured formaldehyde and volatile organic compound emissions from 40 different interior finishes covering various types of flooring, wall coverings, ceiling tiles, and paints.

The results of the laboratory tests were then subjected to toxicological evaluation and subjective sniff-testing procedures. The results of the evaluations were used in the selection of building products. Manufacturers were made aware of the findings and the need to improve the environmental quality of their products.

Whitby Psychiatric Hospital - A Model of Indoor Air Quality Design

The indoor environment was a key consideration in the redevelopment of Whitby Psychiatric Hospital. The complex will be one of the first public facilities in North America planned and maintained to reduce indoor pollution at its source.

Interior finishing materials and finishings are being carefully chosen for the lowest possible pollutant emissions. All housekeeping and maintenance products, and procedures are also being reviewed to reduce possible pollutants.

An integrated pest-management program will prevent the indoor use of pesticides.

The landscaping is also being planned with environmental and health considerations in mind. Organic alternatives for groundskeeping are being considered so that use of herbicides, pesticides and other chemical applications can be avoided.

The building will be heated using hot water radiant heat in the ceiling - one of the best heating methods for maintaining good indoor air quality.

The ventilation system has been designed to effectively remove pollutants that may be generated indoors. Special activity areas will be equipped with exhaust ventilation that avoids re-circulation of dust and odours, and the separate building modules will have individual air handlers. The overall ventilation system has been designed to provide rapid flushing of the building complex when necessary, such as when repainting, during construction or renovation, or when new materials are being installed. The hospital will also have windows that open.

The Ontario government is a pioneer in assessing how exposures to indoor environmental pollution affects the mental and physical health of hospital patients. A unit with special low-pollution features has been designed within the hospital to help in assessing and treating individuals who are hypersensitive to pollutants and whose symptoms may be aggravated by exposure to them.

THE "PAPER-LESS" OFFICE

The Green Workplace funded a range of demonstration projects aimed at using electronic technology to reduce the use of paper, since it accounts for 80 percent of office waste.

Projects were grouped into four areas: the electronic post office; electronic data interchange; electronic forms; and electronic document management. If implemented across government, these technologies have the potential to save tremendous quantities of paper and millions of dollars in future expenditures on paper, printing, mailing and storage.

Electronic Post Office (EPO)

The Electronic Post Office (EPO) allows users of different electronic mail systems to communicate with one another.

In 1991/92 the Green Workplace provided start-up funds to assist the Computer and Telecommunications Services Division of Management Board Secretariat acquire the necessary software and hardware to develop the EPO.

A pilot project with five ministries was completed in September of 1992 and the EPO went into production two months later. By the end of March 1993, more than 10,000 users across government were connected to the EPO.

Approximately 25,000 E-mail documents are sent weekly through EPO, saving about 50,000 sheets of paper each week.

The EPO service was later expanded to include electronic fax capabilities. By the end of the 1993/1994 fiscal year approximately 25,000 users were part of the EPO system, which guarantees a delivery time of 60 minutes, 90 per cent of the time. Approximately 25,000 E-mail documents are sent weekly through EPO, saving about 50,000 sheets of paper each week.

In March 1994, the Executive EPO project was completed, connecting each deputy minister, director of communications and their staff in every ministry. Over the following year, it is anticipated that staff in the ministries not yet linked to EPO will make the connection, as will a number of agencies, boards and commissions.

Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) enables the electronic exchange of common business transactions, such as invoices, purchase orders and payments. The Computer and Telecommunications Division received assistance from the Greening Fund to establish a centralized EDI system that focuses, initially, on electronic commerce both within the government and with the private sector.

During the last year, significant progress was made in developing the GO-NET EDI service and promoting ministry awareness.

The first applications of EDI will begin by fall 1994. These include revenue collection (Ministry of Finance), Bell monthly invoice replacement (Management Board Secretariat), and payments from the Public Trustee's Office (Ministry of the Attorney General). EDI is also being examined for use with Worker's Compensation Board claims.

Electronic Forms

To promote expertise with electronic forms within the government, the Green Workplace provided $105,000 in funding in 1992/93 to five ministries to test and adapt available software for electronic forms.

The information learned during the pilots was shared with other ministries through an interministerial forms management committee, which was chaired by the Green Workplace. A Forms Fair was held at Queen's Park in April 1993 to provide staff from across government with practical hands-on demonstrations of the products developed as a result of the funding to ministries.

An additional $100,000 was provided to five more ministries in 1993/94 to expand the use of electronic forms. Management Board Secretariat's Plain Language Advisor joined the forms management committee to promote the use of plain language on the redesigned electronic forms.

One ministry expanded the scope of their electronic forms project to include document imaging and electronic faxing.

Electronic Document Management

As ministries pursue their paper-reduction programs, systems are required for managing the storage, retrieval, printing and exchange of electronic documents.

To further develop expertise in electronic document management, the Green Workplace provided $142,000 to six ministries to pilot the development and use of electronic bulletin board systems, electronic publishing, electronic document exchange, the conversion of legislation and policy manuals to electronic format (diskette and CD-ROM), and a public information sharing network linking green communities to partner ministries.

GREEN TRANSPORTATION

Green transportation initiatives encourage employees to consider alternative transportation options in order to reduce pollution, traffic congestion, energy use and noise which result from the use of private cars. Car emissions are responsible for about 50 per cent of local air pollution.

Five main strategies were pursued:

- increased public awareness;
- support of road safety;
- the installation of secure bicycle lock-up facilities;
- demonstrating links between cycling and economic development;
- and the promotion of carpooling (Share-A-Ride).

As a result of these initiatives, the Green Workplace received two awards in 1993/94: the Bike Friendly Business Award from Transportation Options (a non-profit community group) and the City Cycling Committee; and the Bicycle Transportation Award from the City of Toronto Department of Public Works and the Environment.

Promoting Public Awareness

The Ontario Government, through the leadership of the Ministry of Transportation, is actively pursuing a revised bicycle policy for the province. Municipalities, for example, are now required to consider bicycles in provincially sponsored transportation studies; GO Transit now allows bikes on GO trains during off-peak periods; and safety enhancements for cycling are underway or being planned as part of an overall road user safety strategy and public education campaign.

During May 1993, the Green Workplace participated in Bike-to-Work Week by providing partial funding for Bike-to-Work Week posters and hosting a Bike-to-Work Week breakfast at Queen's Park.

Secure Bicycle Lock-up Facilities

A February 1993 Queen's Park Bicycle Users Group survey reported eighty-four percent of respondents noted incidents of theft of bicycles or parts. To address this concern, the Green Workplace funded two projects to provide secure lockup facilities in partnership with the Ministry of Economic Development and Trade, Management Board Secretariat, the Queen's Park Bicycle Users' Group and Cadillac Fairview.

The first project, located at 77 Bloor Street West, provides secure indoor lock-up facilities for up to 40 bicycles and was opened in fall of 1993. The second secure facility will open in May 1994 and house 40 bicycles at Queen's Park in the Macdonald Block employee parking area.
An additional 200 outdoor bicycle lock-ups are now provided around Queen's Park.

Promoting Road Safety

In spring 1993, the Green Workplace supported the Ministry of Transportation "Share the Road" poster campaign which appeared on TTC buses in key corridors to encourage greater consideration for all users of the road.

The Green Workplace supported the August 1993 start up of a bilingual newsletter promoting greater awareness of safe cycling activities. *Spokes* aims to keep people informed and encourage sharing of materials, ideas and solutions to road safety cycling problems.

By the end of the fiscal year, plans were well underway for a spring "Safe Cycling Fair" to be hosted by the Green Workplace during Bike-To-Work Week and held in the St. Lawrence Lounge, Queen's Park.

Bikes Mean Business Conference

In October 1993, the Green Workplace participated in the Bikes Means Business Conference , organized by Transportation Options, to highlight the relationship between bicycling and economic development for small businesses.

Community Economic Development - Owen Sound Cyclist's Centre

The Owen Sound Cyclist's Commuter Centre is part of an infrastructure being developed by the Owen Sound Round Table on the Environment and Economy. It seeks to promote the bicycle as a legitimate means of transportation within the Owen Sound city limits.

The Green Workplace contributed funding for the cycle centre. By providing incentives to walk or cycle in and around the city, Owen Sound is promoting the downtown area as a place for people.

Carpooling (Share-A-Ride)

Carpooling is one solution to parking problems, street and highway congestion, and air pollution by vehicles. The Green Workplace has set up a computerized system for matching government employees who are interested in carpooling to work.

Green transportation initiatives encourage employees to consider alternative transportation options in order to reduce pollution, traffic congestion, energy use and noise which result from the use of private cars.

The computer uses postal codes to identify home and work locations of people interested in carpooling then matches people whose commuting habits are similar, i.e. leaving at similar times with similar destinations. Employees using public transportation are encouraged to continue to do so, but those who now drive to work are invited to consider carpooling to reach the GO station or subway.

Share-A-Ride was first promoted to government employees in Metro Toronto in spring 1993 as a manual matching system: applicants filled in a form, the details were entered into the computer and matches were mailed back to the applicant. More recently, the Green Workplace introduced a province-wide telephone-activated system for the Ontario Public Service across the province. Potential carpoolers phone 1-800-56-SHARE, enter their phone number and postal code information, and may receive matches right away.

This system is the only one of its kind in Canada. The Green Workplace created a partnership group to direct its development, and 90 per cent of the capital funding was provided by these partners.

With its partners, Metropolitan Toronto, Ontario Ministry of Environment and Energy, Ontario Ministry of Transportation, Natural Resources Canada and Environment Canada, plans are underway to make this service available to federal government employees and discussions have been held to pilot this service to the public.

ENVIRONMENTAL PURCHASING

Government Policy

Government purchasing policy states that all tenders over $10,000 must contain environmental specifications or considerations in the tender, and that an environmental analysis be included in the evaluation of bids.

An environmental checklist has been prepared and distributed to all purchasing staff to assist in implementing the policy.

A recent tender for photocopiers, to be used by all ministries, provides an example of how changes to government policies have impacted the procurement process.

Remanufactured copiers are now, for the first time, treated as equivalent in performance to new machines. Manufacturers are encouraged to design their equipment to reuse photocopier shells and components.

When evaluating bids for inclusion in the new standing agreement, the energy consumption of each copier was considered and life cycle costing principles were applied in the evaluation of competing products.

Each copier must have the ability to collect information on the percentage of copies duplexed per machine each month. This information will be reported by ministry and can be used to monitor and promote paper use reduction initiatives.

As part of the pre-tender information for photocopiers, companies were asked to report on their own environmental stewardship programs. Documents specified that this information could be used as a tie breaker in the event of two or more bids being within one percent.

In addition, successful bidders were asked to take back all packaging in which the equipment and all regular supplies are delivered and recycle them in an environmentally responsible way.

The successful implementation of this tender provides a powerful model for future use.

EcoLogo Products

For those categories of products which carry an EcoLogo certification, ministries of the Ontario Government are required to buy products so designated. Deputy Minister level approval is required for exemption.

A list of EcoLogo products has been distributed to all government purchasing offices.

If product guidelines have not been written by the Environmental Choice Program, purchasing officers have been asked to use environmental standards/guidelines issued by other accredited organizations, or if necessary, develop their own according to general guidelines issued by Management Board Secretariat.

Mandatory Central Services

While a lot of purchasing in the Ontario government is the responsibility of line ministries, mandatory consolidated contracts are in place for the purchase of fine paper and re-refined lubricating oil.

Fine paper purchased by the government must contain 50 per cent recycled content and 10 per cent post-consumer waste. Working with private sector companies, two new papers were developed, one with 60 per cent recycled content and 20 per cent post-consumer waste and the other with 100 per cent post-consumer waste. These products are available to government ministries through the Office Products Centre and through consolidated contracts.

Packaging Requirements

The Government of Ontario Environmental Procurement Policy and Operational Guidelines state that suppliers are encouraged to implement waste reduction and recycling strategies to minimize the burden on the environment. The Guidelines require suppliers to meet the following packaging requirements:

- Suppliers may use, where appropriate, a combination of packaging materials such as re-usable containers, blanket wrap or cushioning materials provided that all reasonable requirements of materials handling, transportation and storage are observed.

- packaging materials such as kraft paper and corrugated cartons must be made from reclaimed products to facilitate recycling of secondary materials.

- packaging materials must be clearly labelled to display their recycled content and recyclability

- suppliers must ensure that all packaging materials are removed from the customer's premises and disposed of in an environmentally responsible manner.

Supplier's Environmental Practices

Since April 1992, OPS purchasing guidelines call for the following environmental clause to appear in all Tenders and Requests for Proposal:

> *The Government intends that appropriate environmental practices be supported within the private sector. We therefore encourage you to take an active role in implementing environmentally sound business practices and producing goods and services that lessen the burden on the environment in their production, use and final disposition.*

Construction Specifications and Design Guidelines

The design and construction of new buildings and the retrofit of existing ones, specify the use of construction materials made from recycled and renewable resources, equipment that conserves energy and water, and products and systems that promote better indoor air quality.

For more details, please refer to the "Build Green" section of the report.

Toward A More Coordinated Approach To Procurement

While the purchasing power of the Ontario government may be significant, a more broad based approach that combines the purchasing power of both the public and private sectors is necessary if significant domestic markets for "green" products and industries are to be created.

During 1993/94, Management Board Secretariat worked in partnership with others in the procurement field to develop a more coordinated approach to procurement policies and greater public awareness of environmentally responsible products.

Canadian Standards Association - Environmentally Responsible Procurement (ERP)

A multi-stakeholder group, including staff from the Green Workplace and Purchasing Services Branch, worked with the Canadian Standards Association to develop guidelines for environmentally responsible procurement. The purpose of the guidelines is "to assist Canadian businesses and organizations of all sizes in improving their environmental performance."

The document encourages organizations to review their current practice, establish an ERP policy, set priorities and specific targets, develop short term and long term strategies, implement a communication plan and accountability framework, monitor success and build a culture of continuous improvement.

G.I.P.P.E.R.'s Guide to Environmental Purchasing

Staff from the Management Board Secretariat were founding members of Governments Incorporating Procurement Policies to Eliminate Refuse (GIPPER). GIPPER is comprised of representatives from both the waste management and purchasing departments of federal, provincial and municipal levels of government and other concerned organizations. The goal of GIPPER is "to investigate, develop and promote effective government purchasing policies and practices which will contribute to an overall, national goal of 50% reduction in waste generation by the year 2000".

Members of GIPPER have prepared a new Guide to Environmental Purchasing that focuses on practical considerations involved in the purchase of cleaning products, composting products and technologies, energy efficient lighting products, lubricants (such as engine oil, additives, and synthetic oils), paints, papers, plastics, rubber, and packaging.

"Green" Procurement Workshop

The Green Workplace and the Waste Reduction Office of the MOEE, in partnership with the Office of Federal Environmental Stewardship, plan to sponsor a workshop in the fall of 1994 to showcase recent procurement initiatives in the public and private sectors. It will provide a unique opportunity for private sector companies to join with local, regional, provincial and federal government officials to "link" initiatives, reduce duplication of effort, and build new partnerships.

Office Products Centre Trade Show

The annual Office Product Centre trade show will have an environmental focus in 1994. Suppliers of recycled paper, remanufactured toner cartridges and manufacturers of office products made from recycled plastic will exhibit their products to the public service audience.

COMMUNICATIONS

Communication is an integral part of all Green Workplace projects, whether the role is effecting a change in behaviour of government employees or demonstrating leadership to the private sector.

Green Workplace communications are aimed at two distinct audiences.

Internal: the objective is to increase awareness of and support for environmentally sound practices in the workplace and change the day-to-day behaviour of government employees.

External: with the success of the workplace waste reduction program and other initiatives, the aim is to set an example for other public and private sector groups.

Highlights of Internal Communications

The Green Workplace produces corporate communications tools such as posters, factsheets, brochures and 'how to' guides to encourage greening in ministries. Advice and support for communications projects is available to the environmental co-ordinators in all ministries.

In 1993/94, posters were produced to promote energy conservation, waste reduction, use of e-mail and carpooling. In addition, regular articles in government publications and ministry newsletters keep employees informed about the progress made in greening.

A four-page insert in Topical highlighted some of the innovative greening projects undertaken by ministries. The goal was to inform government employees about interesting greening projects and encourage other ministries to adopt good ideas.

A new display was developed highlighting the OPS achievement of a 50 percent reduction in garbage. The portable display was used in special exhibitions in both the private sector and internal government shows, then displayed in government buildings in northern and eastern Ontario.

"Maximum Green" Leads the Way

Communication was a key element in the "Maximum Green" project. In addition to developing communications tools for staff in the pilot buildings, the project was used to gain broad publicity for the government's greening efforts.

Wrap-up events held in each of the buildings were used to congratulate government staff in those buildings and present an award to each Deputy Minister. The award was a miniature xeriscape garden planted in the Deputy's old garbage pail which had been removed for the launch of "Maximum Green".

Following the three-month pilot, a "Maximum Green How To" guide was produced as a step-by-step guide for other ministries to implement a "Maximum Green" program. The guide has been widely requested by ministries and private sector groups interested in implementing an intensified waste reduction program.

Share-A-Ride

The Share-A-Ride program required key communications support including advertisements, publicity in ministry publications, factsheets and a booth at the Health Fair at Queen's Park and the Ministry of Transportation complex in Downsview. A poster has been developed for use both internally and by the Share-A-Ride partners to promote the program.

Recognition Program

The Green Workplace also has a recognition program to honour key supporters of greening in ministries. Three ministries were recognized during the year.

Highlights of External Communications

Special events are held to promote key projects of the Green Workplace to a private sector audience. They are also used to help demonstrate the effectiveness of new green technologies.

For example, the launch of the composting machine at the Ontario Science Centre attracted significant attention and was attended by local municipal officials, waste management specialists and local media. Articles appeared in waste management publications in both Canada and the United States.

Waste Not, a TVOntario series highlighting leading edge ideas and technologies for waste reduction, have produced items which will feature the composter at the Ontario Science Centre and the winners of the Build Green Student Challenge.

The *1992-93 Results Report* was widely distributed within the Ontario government and to environmental groups, municipalities, school boards and other governments to make a wider range of people aware of successful waste reduction initiatives.

Around the Ministries - Overview

A year ago electronic forms and on-line office manuals initiatives were in the pilot stage in a number of ministries. During 1993/94 significant strides were made in moving to electronic means of exchanging and providing information, with virtually everyministry reporting some electronic paper reduction / cost saving initiatives.

E-mail is the normal way of communicating with ministry colleagues for thousands of OPS staff, and more staff are getting access to e-mail each month. Internal bulletin boards and others accessible by the public make information available immediately in an environmentally friendly way.

Travel time and costs are being dramatically reduced as more staff meet through teleconference or video-conference. These changes are contributing to energy savings as the OPS moves toward its goal of 20 per cent reduction in energy consumption between 1992 and 2000.

Green behaviour is encouraged through internal ministry newsletters, ministry e-mail and bulletin boards and personally from their Green Team members. Green teams are a fixture in most ministry headquarters operations and teams are being set up in the field. Since the beginning of the Green Workplace program, the importance of visible commitment by ministry senior management has been stressed and each ministry has been required to identify an Executive in Charge of Greening, who will bring regular greening results reports to the ministry's senior management committee According to ministries, these reports are now more commonplace than in previous years.
When Green Workplace programs began, ministry attention focussed on changing employee behaviour and making their recycling programs effective. Once basic recycling behaviour was second nature to staff, the following ministries moved to Maximum Green. Employees in parts of the ministries of the **Attorney General, Community and Social Services, Economic Development and Trade, Environment and Energy, Health, Labour, Management Board, Solicitor General, and Transportation** said goodbye to individual garbage pails and added composting of food waste to their 3Rs behaviour at work. Three months later, these employees had cut garbage sent to landfill by a further fifty per cent.

Ministries are concerned about what they are buying, as is shown by the number of green purchasing initiatives reported for 1993/94. A number of ministries cite improved purchasing practises as part of the 1994/95 work plan. Recycled content of what is purchased and the packaging used are receiving ministry attention.

Our horizons expanded beyond OPS staff during the year. Most ministries took part in a clothing drive which provided thousands of pounds of clothing to local charitable organizations, for redistribution and reuse. Some ministries' communications programs targeted the families of staff, offering them information and publications on greening at home and at work.

Over the three years since the Green Workplace began ministries have made great strides in handling their greening programs on their own. The 3Rs are a fact of life in virtually every OPS workplace and new environmental initiatives are springing up from ministry headquarters to the smallest offices. It is not only Green Team members who are bringing a new environmentally friendly behaviour to the office, but also the thousands of employees who think of the environment and the 3Rs as they go about their daily tasks.

Ministry Annual Report Highlights

The **Ministry of Agriculture and Rural Affairs** has played a lead role in OPS electronic forms initiatives and has now completed evaluating forms packages to select one most compatible with ministry technology. Over the next two years virtually all ministry offices will gain access to electronic forms. An electronic bulletin board service has been installed and is available to all ministry offices equipped with a modem. It is also available to the public, providing weekly horticulture and field crop reports, daily reports from climatology stations, weather reports which are updated twice a day, daily farm market news reports, ministry news releases and access to CD-ROM information.

The **Ministry of the Attorney General** placed the position of ministry Environmental Co-ordinator into the purchasing and supply section to focus on green purchasing. During the year 150 ministry offices were canvassed with regard to the purchase of remanufactured toner cartridges. The elimination of carbon forms and greater use of recyclable inter-office envelopes were emphasized among the green purchasing initiatives.

The **Ministry of Consumer and Commercial Relations** pioneered new space standards for staff when the head office was relocated. They reduced the space occupied by 11,000 square feet, used workstations to optimize natural lighting, equipped boardrooms with light switches so that the lights can be turned off when the rooms are not in use, optimized the use of their computers and brought the office recycling program to their new location.

More than 80 per cent of the kitchen waste is being composted at eight large residential facilities for the developmentally handicapped, operated by the **Ministry of Community and Social Services**. Retrofits to save energy and water were undertaken at Ministry facilities. Solar film and canopies on windows at two facilities have decreased HVAC costs .

Upgrading and expanding the ministry's e-mail and voice-mail networks, to reach more than 80 and 30 per cent of staff respectively, was a priority of the **Ministries of Culture, Tourism and Recreation and Citizenship** this year. Introduction of a covered bicycle parking area at the ministry headquarters is expected to reduce danger of theft or vandalism to staff bicycles and hence increase the number of employees choosing this environmentally-friendly form of transportation to and from work

The **Ministry of Economic Development and Trade** saved $27,000 during 1993/94 by using remanufactured laser toner cartridges instead of new ones. Thanks to their systems branch laser printers no longer print a blank sheet of paper at the end of each document. Not only is paper recycling taking place throughout the ministry, staff first reuse paper wherever possible (e.g. fax cover sheets, blank backsides) and then recycle it.

The **Ministry of Education and Training** is moving towards providing curriculum and many other education documents to school boards electronically. In a November 1993 pilot project, compact discs containing common curriculum topics were distributed to each school board. Within the ministry they produce the in-house phone book electronically and they eliminated the need to print 2,000 copies of the 130 page *Directory of Education* by placing it on an electronic bulletin board system.

At the **Ministry of Environment and Energy** there was particular emphasis on reduction activities. Their action plan called for completion of a wide-area network, to enable all ministry staff to communicate and send documents electronically. The ministry saved $200,000 on paper alone with the introduction of the InfoShare Quick Reference Card (electronic information management system). Their laboratory services branch reduced hazardous waste. Copper is now used instead of mercury to clean samples in the trace organics section and the drinking water organics section have reduced the volume of solvents they use by as much as 80 per cent.

The **Ministry of Finance** conducted a waste audit at its Oshawa headquarters and found that 67.8 per cent of office waste was being recycled. By going Maximum Green in 94/95 they plan to further reduce the waste going to landfill and reach 80 per cent recycled material. Through a vehicle leasing program the ministry is converting to compact, fuel efficient cars. Plans for next year call for an environmental protection program steering committee, with bargaining unit representation. The committee will evaluate employee suggestions and bring them forward for senior management approval.

Having put into place a ministry environmental policy, the **Ministry of Health** focussed on employing technology to reduce paper and save costs. One branch reduced its paper consumption by one-third in a single year. Their ministry phone book and their administrative policies and directives are on-line. Waste audits conducted at Queen Street Mental Health Centre and North Bay Psychiatric Hospital showed that recyclable materials were going to landfill and steps were taken to improve the recycling program. The ministry is preparing to meet the requirements of the new 3R Regulations. Next year the ministry will concentrate on reducing packaging and improving product stewardship.

The **Ministry of Housing and Municipal Affairs** has set up a *Green Room* which contains information on environmental concerns and ways that employees can put the 3Rs into action both at home and at work.

The **Ministry of Labour** has had green teams in place throughout their ministry for two years, in order to involve all staff in greening their workplace. Since the start of 1993 the ministry has had a " green theme of the month" and all green teams conducted staff awareness education/information session around these themes. A guideline on environmental protection was added to the ministry's policy manual and e-mail now reaches 98 per cent of staff.

At **Management Board Secretariat** 2400 staff are on e-mail and teleconferencing is used extensively, thereby reducing employee travel. On-line purchasing is being piloted in a part of the ministry.

The **Ministry of Natural Resources** published the *Green Book - MNR Environmental Protection Program Reference Manual* and distributed it to every ministry work location. It, along with an *Environmental Electronic Bulletin Board*, are their primary means of stimulating greening initiatives across the province. MNR established a video-conferencing network, linking 17 MNR locations thereby saving travel costs and time and reducing energy consumption. Environmental concerns were introduced to the ministry's supply management policy manual, setting the stage for incorporating waste management principles in all ministry procurement.

Video conferencing, set up in conjunction with MNR, is also reducing staff travel and saving energy at the **Ministry of Northern Development and Mines**. As a step toward making environmentally friendly behaviour routine in the workplace, the ministry invited employees and their families to submit environmental questions to the Green team Leader in celebration of Earth Day and published a selection of the questions and answers in the internal newsletter. All ministry employees received a list of 25 environmental booklets via e-mail. Upon request employees were sent copies of these publications concerning home and office greening.

Energy conservation and recycling at the 52 correctional facilities was a major focus for the **Ministry of the Solicitor General and Correctional Services** during the year. Their plan called for implementation of the FASER energy management system to better manage energy consumption. By increasing the number of institutions at which composting takes place, the ministry will reduce the waste stream at those facilities by as much as 80 per cent. A fully integrated waste management system is being developed for the new OPP Headquarters in Orillia and the OPP cruisers purchased during the year are more fuel efficient than those acquired in the past. Mid-size cars began to be used as OPP support vehicles.

The **Ministry of Transportation** established new provincial contracts to dispose of scrap tires from government locations, ensuring that they are recycled and reused in an environmentally acceptable manner. This ministry handles all OPS vehicle purchasing and operates a vehicle recycling program. Using both ministry garages and community colleges to refurbish OPP cruisers, 10 vehicles were put back into service within MTO at a cost of about $1500 per vehicle for the parts. This program will be expanded in 1994/95. The Downsview headquarters complex began composting food waste during 1993/94.

For more copies of this report or for further information on the Green Workplace Program,

please call: (416) 327-3777
fax: (416) 327-4193

or write: The Green Workplace, Room M2-59, 900 Bay Street
Toronto, Ontario M7A IN3

The following publications are also available from the Green Workplace.

Fact Sheets: What We're Doing ... Why We're Doing It

The Green Workplace: It's Working

Green Transportation

Brochures: Xeriscape Demonstration Garden, Queen's Park, Toronto

Composting hits *paydirt*